

ABSTRACT OF THE DISCLOSURE

The present invention relates to an optical fiber or the like which allows more precise compensation for the chromatic dispersion of a transmission optical fiber over a broad wavelength band. The optical fiber has a chromatic dispersion of  $-100$  ps/nm/km or less in a wavelength band of 1535 to 1565 nm, 1565 to 1610 nm, 1554 to 1608 nm or 1535 to 1610 nm. In particular, the chromatic dispersion profile of the fundamental mode of this optical fiber defined by the orthogonal coordinate system of the wavelength and chromatic dispersion value has a shape such that, over the entire wavelength band except for the shortest and longest wavelengths thereof, the chromatic dispersion values on the chromatic dispersion profile are respectively located on the minus side of the associated chromatic dispersion values on a straight line connecting the chromatic dispersion values at the shortest and longest wavelength. Since the chromatic dispersion profile of the transmission optical fiber such as a conventional single-mode fiber or the like has a shape opposite to that of this optical fiber, the chromatic dispersion of the transmission optical fiber can be compensated for more precisely by using this optical fiber as a dispersion compensating optical fiber.